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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/065,750	11/15/2002	Cheng-Jye Liu	8711-US-PA	7526

31561 7590 06/02/2005

JIANQ CHYUN INTELLECTUAL PROPERTY OFFICE
7 FLOOR-1, NO. 100
ROOSEVELT ROAD, SECTION 2
TAIPEI, 100
TAIWAN

EXAMINER

LUU, CHUONG A

ART UNIT PAPER NUMBER

2818

DATE MAILED: 06/02/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/065,750

Applicant(s)

LIU ET AL.

Examiner

Chuong A. Luu

Art Unit

2818

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 03 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on May 12, 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-6 and 8-21 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 13-21 is/are allowed.
- 6) ☒ Claim(s) 1-6 and 8-12 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Request for Continued Examination

The request filed on May 12, 2005 for a Request for Continued Examination (RCE) under 37 CFR 1.53(d) based on parent Application No. 10/065,750 is acceptable and a RCE has been established. An action on the RCE follows.

Response to Arguments

Applicant's arguments with respect to claims 1-6 and 8-12 have been considered but are moot in view of the new ground(s) of rejection.

PRIOR ART REJECTIONS

Statutory Basis

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

The Rejections

Claims 1, 3-6 and 9-11 are rejected under 35 U.S.C. 102(e) as being anticipated by Kluth et al. (U.S. 6,376,341 B1).

Kluth discloses a method for fabricating a memory cell with

(1) forming a silicon oxide (26)/silicon nitride (28)/silicon oxide (30) (ONO) stacked layer (24) on a substrate (23), the ONO stacked layer (24) consisting of a bottom oxide layer (26), a silicon nitride layer (28) and a top oxide layer (30);

forming a masking layer (protective layer) (36) on the ONO stacked layer (24);
patterning the masking layer (protective layer) (36) and the ONO stacked layer (24) to form a plurality of stacked patterns (see Figure 6);

removing the masking layer (protective layer) (36), which becomes layer (34) (see column 6, lines 66-67);

(3) wherein a thickness of the bottom oxide layer is about 50-150 Å (50-100 Å) (see column 5, lines 28-29);

(4) wherein a thickness of the silicon nitride layer is about 50-200 Å (55-80 Å) (see column 5, lines 35-43);

(5) wherein a thickness of the top oxide layer is about 50-150 Å (70-120 Å) (see column 5, lines 44-46);

(6) the masking layer (protective layer) (36) comprises silicon nitride (see column 5, lines 49-50);

(9) wherein the ONO stacked layer (24) is patterned until a portion of the bottom oxide layer (26) is exposed "on the sidewall" (see Figure 6);

(10) wherein the exposed bottom oxide layer (26) is removed after the ion implantation is performed (see Figures 3-5);

(11) wherein the insulator comprises silicon oxide (50) (see column 6, line 67).

PRIOR ART REJECTIONS

Statutory Basis

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The Rejections

Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kluth et al. (U.S. 6,376,341 B1) in view of Wolf et al. (Silicon Processing).

Kluth discloses the claimed invention except for wherein removing the protective layer comprises using wet etching to remove the protective layer. However, Wolf discloses silicon processing for the VLSI ERA with (1).... wherein an etching rate of the protective layer is lower than an etching rate of the top oxide layer (see pages 532-534); (2) wherein removing the protective layer comprises using wet etching to remove the protective layer (see pages 532-534). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the etching rate of protective layer and the oxide layer of Kluth's device (accordance with the teaching of Wolf) within the range as claimed for the purpose of obtaining the better arrangement of the semiconductor device and reduce the fabrication time.

Claims 8 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kluth et al. (U.S. 6,376,341 B1) in view of Randolph et al. (U.S. 6,538,270 B1).

Kluth discloses everything above except for forming a plurality of word lines on the substrate; wherein the word lines comprise polysilicon. However, Randolph discloses an array of memory cell with **(8)** further comprising:..... forming a plurality of control gate electrode (228) (word lines) on the substrate (see column 4, lines 24-29. Figure 6); **(12)** wherein the control gate electrode (228) (word lines) comprise polysilicon (see column 4, lines 26-27). It would have been obvious to one having ordinary skill in the art at the time of the invention was made to modify the teachings of Kluth (accordance with the teaching of Randolph). Doing so would facilitate the manufacture of the semiconductor device and increase the connectivity and the life of the memory cell.

Allowable Subject Matter

Claims 13-21 are allowed.

The following is an examiner's statement of reasons for allowance: The examiner has reviewed the prior art in light of applicant's claimed invention and finds that the combined limitations claims define over the prior art.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Chuong A. Luu whose telephone number is (571) 272-1902. The examiner can normally be reached on M-F (6:15-2:45).

Art Unit: 2818

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David C. Nelms can be reached on (571) 272-1787. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Chuong Anh Luu
Patent Examiner
May 27, 2005